



REVERSE OSMOSIS DRINKING WATER SYSTEMS



Model: EWR 5100P



Model: EWR 5075



Model: EWR 4050

INSTALLATION, OPERATION & SERVICE MANUAL

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CAUTION:

The Centers for Disease Control and Prevention (CDC) and the Environmental Protection Agency (EPA) have issued guidance to people with severely weakened immune systems who may want to take extra precautions to reduce the risk of infection with *Cryptosporidium* from drinking water. This guidance pertains to people with HIV/AIDS, patients receiving treatment for cancer, recipients of organ or bone marrow transplants, transplant patients taking immunosuppressive drugs, and persons who have congenital immunodeficiencies.

The EPA has stated that they do not know the importance of drinking water compared to other possible sources of *Cryptosporidium* to determine how most people become infected. The CDC-EPA guidance suggest that immunosuppressed individuals discuss their risks with their health care provider.

All individuals should take adequate precaution when changing the filter cartridges, including wearing protective gloves, to avoid direct contact with the exhausted cartridges.

*For complete specifications, refer to the Performance Data Sheet.

INTRODUCTION

Your new Reverse Osmosis Drinking Water System uses a combination of filtration technologies to reduce unwanted contaminants in your water supply. Your Reverse Osmosis System uses the following steps combine to give you the best in clear sparkling Reverse Osmosis water:

REVERSE OSMOSIS MECHANICAL

FILTRATION - The Reverse Osmosis Turbidity Pre-filter will remove suspended matter that are larger than 5 micron as well as silt, dirt, scale and rust. The 5 Micron nominal rating helps give maximum life to the Reverse Osmosis Membranes.

REVERSE OSMOSIS CARBON BLOCK – The Reverse Osmosis Carbon Block Pre-filter contains carbon with a vast network of pores. The tremendous surface area of these pores (typically 800-1200 square meters per gram of carbon) gives the Reverse Osmosis carbon very good adsorption sites for substances that contribute to tastes and odours. The Reverse Osmosis carbon block in the Pre-filter will remove chlorine that may be present in the feed water. This Reverse Osmosis pretreatment is necessary for membrane protection.

REVERSE OSMOSIS MEMBRANE – The Reverse Osmosis Membrane is the heart of the Reverse Osmosis filtration system. The Reverse Osmosis system is designed to reduce the dissolved mineral content of the water. Minerals picked up in the environment by the water are measured as Total Dissolved Solids (TDS). In the Reverse Osmosis process, dissolved minerals are separated from the incoming water (the Permeate). The Reverse Osmosis excess minerals are rinsed to drain (the Reject Water).

The Reverse Osmosis membrane is a specially constructed, fully aromatic polyamide film, and is classified as a Thin Film Composite (T.F.C.). The spiral wound construction of the Reverse Osmosis Membrane provides maximum surface area for water production and is less susceptible to fouling by particulate matter, turbidity and colloidal materials.

REVERSE OSMOSIS IN-LINE ACTIVATED CARBON COCONUT SHELL POST FILTER

– The Reverse Osmosis In-Line Activated Carbon Post Filter is located after the Holding Tank and reduces tastes and odours that may pass through the Reverse Osmosis system. It adds a final polish to the water.

REVERSE OSMOSIS AUTOMATIC SHUTOFF VALVE

– The Reverse Osmosis ASO Valve senses when the product water tank is full and closes the feed water supply to prevent excess Reverse Osmosis reject water from going to drain when the Reverse Osmosis System is not producing water.

REVERSE OSMOSIS BOOSTER PUMP

– The Reverse Osmosis in line booster pump will increase the incoming water pressure after the Reverse Osmosis pre turbidity and carbon filtration stages to 100psi for maximum efficiency and production quality through the Reverse Osmosis TFC membrane TDS removal process. Power standard outlet plug 110V / 60 Hz is required.

REVERSE OSMOSIS MICRO COMPUTER	
The Reverse Osmosis micro processor provides the following functions for the Reverse Osmosis System: A) Low Pressure detection B) High pressure detection C) TDS Monitor D) Automated water membrane flush	E) Indicates when to replace cartridges by LCD display F) Auto shut off on water leak detection G) Auto shut off on electrical current of greater than 1.8 amps.

REVERSE OSMOSIS PREPARATION

A. Reverse Osmosis Major System Components

The following components comprise the Reverse Osmosis Drinking Water System. (Refer to Fig. 1, below for general system layout.)

1. A Reverse Osmosis Manifold assembly
2. Reverse Osmosis Housings & Housing O-rings.
3. Reverse Osmosis Drinking Water Holding Tank.
4. Reverse Osmosis Dispensing Faucet.
5. Reverse Osmosis Feed Water Ball Valve.
6. Reverse Osmosis Drain Clamp.
7. Reverse Osmosis Plastic Tubing and tube connectors.
8. Reverse Osmosis Membrane sealed in a plastic bag.
9. Reverse Osmosis Sediment Pre-filter, shrink wrapped.
10. Reverse Osmosis activated Carbon Pre-filter, shrink wrapped.
11. Reverse Osmosis In-Line Activated Coconut Shell Carbon Post Filter.
12. Other items necessary for Reverse Osmosis installation may include wood screws or machine screws and nuts for mounting the manifold, or concrete anchors for hanging on basement wall. Additional Reverse Osmosis tubing or tube connectors. Reverse Osmosis Plastic wire ties for organizing tubing.
13. Reverse Osmosis Installation Kit

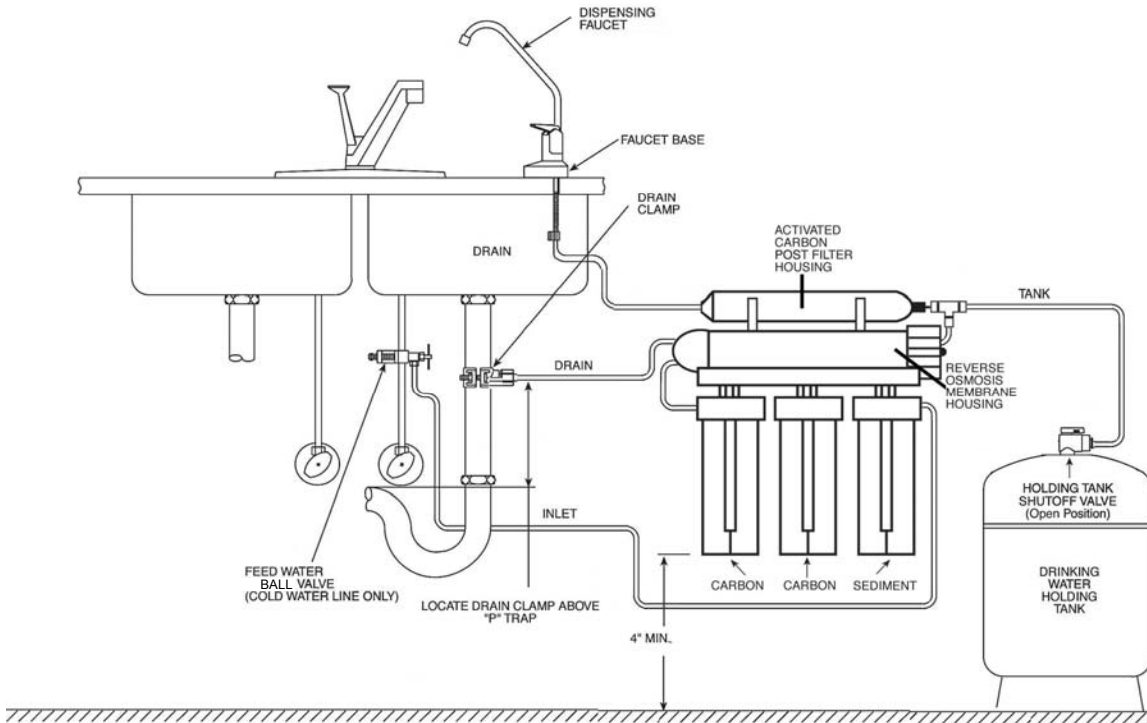
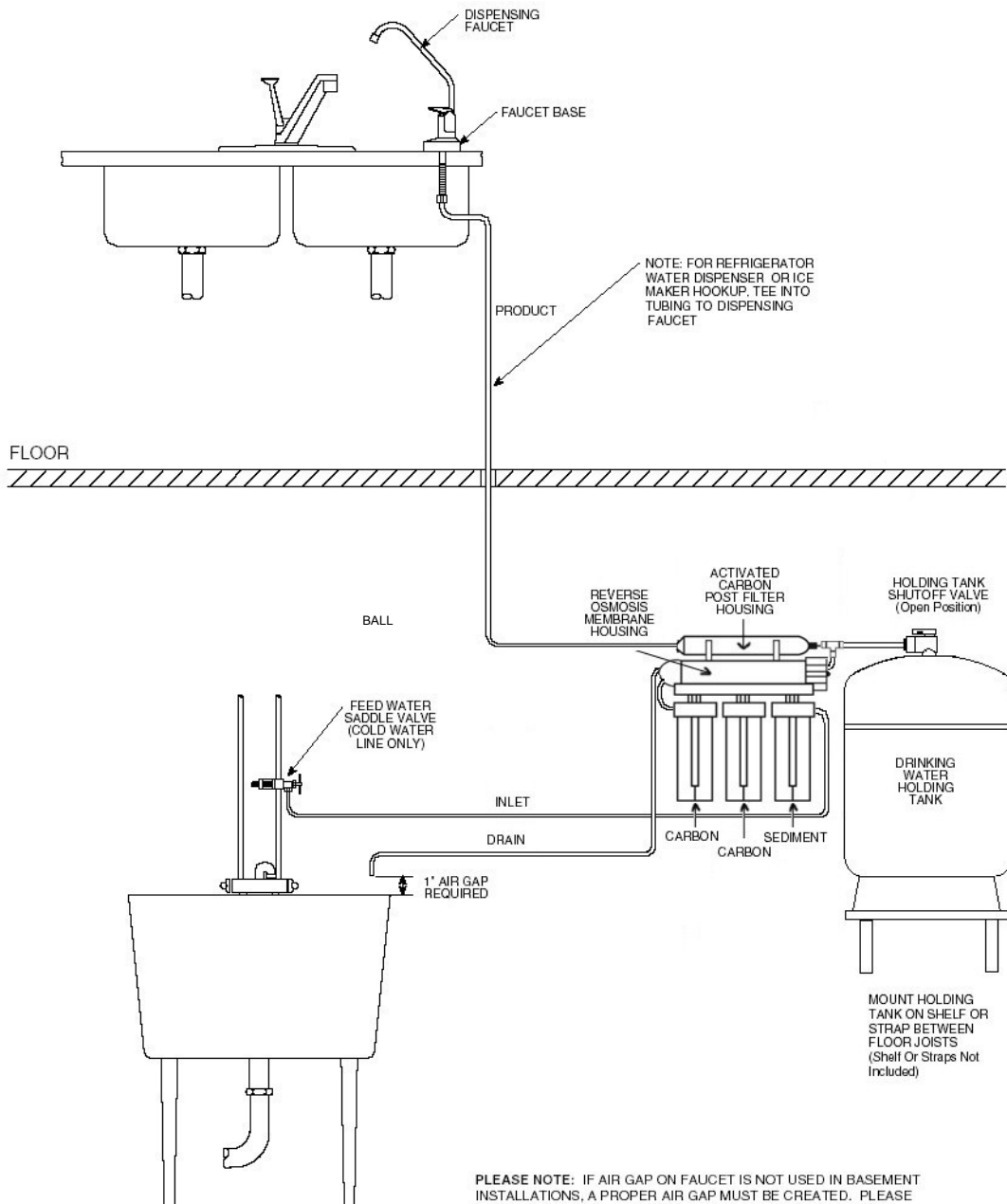


Figure 1



B. Tools Recommended for Reverse Osmosis Installation

The following tools will cover most of the Reverse Osmosis installation sites encountered:

1. 3/8" variable speed electric drill.
2. Extension work light with outlet.
3. Safety glasses.
4. 11/4" Greenlee hole punch and 1/8" and 1/2" metal drill bits for pilot hole.
6. Center punch and hammer.
7. 11/4" wood bit.
8. Concrete drill bits.
9. Assorted wood and metal drill bits including 7/32" metal drill bit.
10. Phillips head and flat blade screwdrivers.
11. 1/2", 9/16" and 5/8" open end wrenches.
12. 10" Crescent wrench with jaws taped to hold faucet.
13. Basin wrench or 10" pipe wrench.
14. Teflon tape.
15. Wide masking tape or duct tape.
16. Plastic tubing cutter.
17. Extra plastic tubing.
18. Low range air pressure gauge.
19. Small bottle of liquid chlorine bleach.
20. Paper towels, wisk broom and assorted clean up materials.

C. Site Selection for Major System Reverse Osmosis Components

The Reverse Osmosis System was designed to fit under a sink, however, because of space limitations or other reasons, the Reverse Osmosis system's flexible design allows for other locations. When determining the location of your Reverse Osmosis system remember that access to a cold water tap line, the household drain, and ease of Reverse Osmosis filter replacement are important considerations.

All Reverse Osmosis components and tubing should be located in an area not exposed to freezing temperatures. If winter temperatures are severe, the area should be above the minimum temperature listed in Table B, page 2 for proper performance. Do not expose Reverse Osmosis system or tubing to direct sunlight.

- 1. Reverse Osmosis Drinking Faucet** – The Reverse Osmosis faucet should be placed near the sink where drinking water is normally obtained. Convenience of use (filling of water pitchers and glasses), and an open area beneath the Reverse Osmosis faucet under the sink for attaching product and Reverse Osmosis drain tubing are considerations. A 2" diameter flat surface is required above and below the Reverse Osmosis installation site. The thickness of the mounting surface should not exceed 1 1/4"
- 2. Reverse Osmosis Holding Tank** – The Reverse Osmosis Holding Tank may be placed where it is convenient within 10 feet of the Reverse Osmosis faucet; under the sink, in an adjacent cabinet are the best choices or in a basement within 20 feet of the Reverse Osmosis faucet. If a longer run of Reverse Osmosis tubing is required, the tubing should be the 3/8" diameter OD size to prevent a high pressure drop within the Reverse Osmosis System.
- 3. Reverse Osmosis Manifold Assembly** – The Reverse Osmosis manifold can be installed on either the right or left side of the under-sink area or a cabinet. The right side is recommended because all the Reverse Osmosis tubing will be to the back of the cabinet and out of the way. Reverse Osmosis Installation in the basement is also an option; one location is near the laundry/utility sink where cold potable water and rain access are handy. The mounting location should allow adequate clearance and accessibility for Reverse Osmosis cartridge changes.

4. Reverse Osmosis Feed Water

Connection – The Reverse Osmosis Feed Water Ball Valve should be located as close to the manifold assembly as possible. USE A POTABLE COLD WATER SUPPLY ONLY TO YOUR REVERSE OSMOSIS SYSTEM. Softened water is preferred as it will extend the life of the Reverse Osmosis Membrane.

5. Reverse Osmosis Drain Connection –

The Reverse Osmosis waste water must go to a drain connection with easy access.

Do NOT connect the Reverse Osmosis system drain line to the dishwasher drain or near the garbage disposal.

REVERSE OSMOSIS INSTALLATION STEPS

All plumbing should be done in accordance with local plumbing codes.

In restricted under-sink areas, it may be easier to install the Reverse Osmosis faucet first. Allow adequate Reverse Osmosis tubing lengths for any final Reverse Osmosis component position.

A. Reverse Osmosis Faucet Installation

2a. Drilling a stainless steel sink:

- Center punch the hole to provide a starting point for the drill.
- Start with a smaller drill as a pilot, and then drill a ½" diameter hole to accept the bolt of a 1¼" Greenlee Hole Punch (1¼" chassis punch).
- Clean away any chips.
- Install the punch and tighten the nut to cut the hole.
- Deburr any sharp edges.

2b. Drilling a porcelain sink:

It is best to use a special 1¼" diameter cutter designed for porcelain. A carbide tipped masonry bit is a second choice.

- Place a piece of tape over the area to be drilled to help prevent chipping.
- Drill a pilot hole for the porcelain cutter. Use the pilot drill supplied with the kit or a carbide tipped drill.
- When drilling the 1¼" hole, drill slowly and carefully; the porcelain chips easily.
- After drilling, clean the area well. Iron fillings, if left in place, can cause rust stains.

2c. Drilling a counter top:

NOTE: The counter top must be less than 1¼" thick. Treat ceramic tiles as porcelain until the tile is penetrated, then use the carbide tipped metal cutter.

Formica counter tops may be drilled with a good 1¼" wood bit, drilling a 3/32" pilot hole will help keep the bit going straight.

IMPORTANT NOTICES:

This Reverse Osmosis system contains replaceable treatment components critical for effective performance. It is the user's responsibility to, and the manufacturer strongly recommends that the user periodically test the Reverse Osmosis product water to verify the Reverse Osmosis system is performing satisfactorily.

The Reverse Osmosis system is acceptable for water treatment of influent concentrations of no more than 27 mg/l nitrate and 3 mg/l nitrate in combination measured as N and is certified for nitrate/nitrite reduction only for water supplies with a pressure of 40 psig (280 kPa) or greater.

DO NOT USE WITH WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY, WITHOUT ADEQUATE DISINFECTION BEFORE OR AFTER THE SYSTEM. Reverse Osmosis Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.

LONG REACH FAUCET

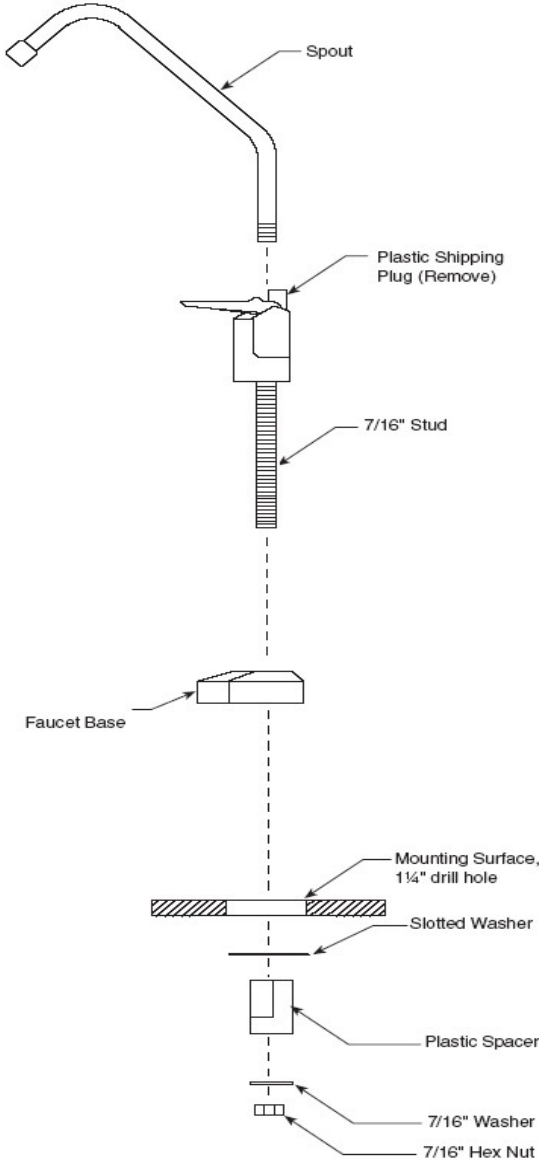


Figure 2A

B. Reverse Osmosis Feed Water Ball Valve Installation

Decide on location. Do NOT connect Reverse Osmosis to a hot water feed line. Water over 100°F may cause permanent damage to the Reverse Osmosis Membrane. (Refer to Fig. 3 page 8.)

1. Shut off the water supply and drain the line from the Reverse Osmosis system.
2. To install the Reverse Osmosis Feed Water Ball Valve:
 - You will require 1 – ½" MIP fitting (threaded on one end).
 - To begin, unscrew the copper pipe and fitting which is located directly under the sink.
 - Place some Teflon Tape on the threads of the copper pipe as well as the threads on the Reverse Osmosis feed water ball valve.
 - Screw the copper pipe into the Reverse Osmosis feed water ball valve.
 - Screw the pipe with the FIP fitting onto the opposite end of Reverse Osmosis feed water ball valve.
 - Remove nut from the Reverse Osmosis feed water ball valve.
 - Slide the nut onto the ¼" reverse osmosis tubing.
 - Place the ¼" tubing onto the exposed threads of the Reverse Osmosis feed water ball valve.
 - Screw the nut onto the Reverse Osmosis feed water ball valve.

3. With the Reverse Osmosis Feed Water Ball Valve closed, open the Reverse Osmosis sink faucet and the water supply and allow the water to run for a few minutes to flush any debris caused by the installation.
 - Close the Reverse Osmosis faucet and check the Reverse Osmosis Feed Water Ball Valve for leaks.
 - Once installation of Reverse Osmosis System is completed open Reverse Osmosis feed water ball valve to allow flow of water.

REVERSE OSMOSIS FEED WATER BALL VALVE

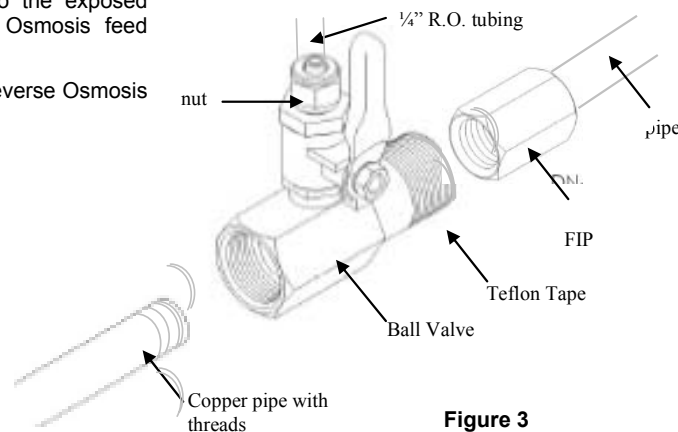


Figure 3

C. Reverse Osmosis Drain Clamp Installation

Choose the Reverse Osmosis drain outlet location.

The following are instructions for discharging in the sink drain pipe. (Refer to Fig. 1, page 3)

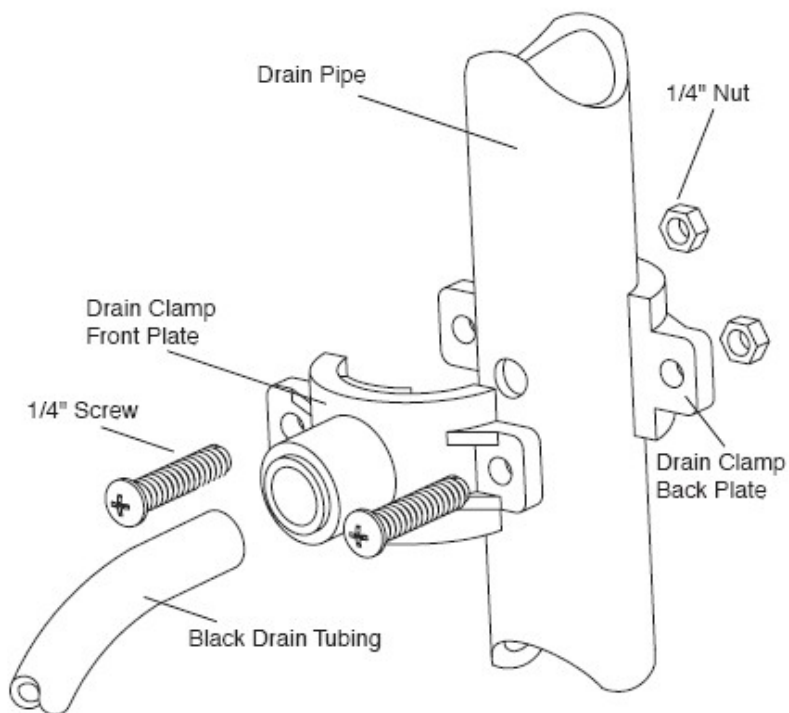
1. Position the Drain Clamp on the sink drain pipe above the drain trap. Allow room for drilling. Tighten securely.
2. Use a battery powered or properly grounded drill. Using the Clamp port as a drill guide, drill a 7/32" hole through the wall of the drain pipe.

3. Locate the 3/8" Black Drain Tubing connected to the Reverse Osmosis System. Route to the Reverse Osmosis tubing to the Drain Clamp and trim to length.

CAUTION: The lowest point of the line should be the point of connection to the Reverse Osmosis Drain Clamp. There should be no sag in the Reverse Osmosis tubing as this may cause excessive noise as the reject water is flowing to drain.

- Refer to Fig. 4, below. To connect the Drain Tubing, install the Compression Nut and the Brass Insert.
- Insert the tubing into the Drain Clamp and tighten the Compression Nut.

3/8" DRAIN CLAMP ASSEMBLY



D. Position the Reverse Osmosis Holding Tank & Make the Final Hose Connections

1. Check the Reverse Osmosis tank pre-charge pressure. Make sure it is between 5 to 7 psig.
2. Pull the cap/plug off the top of the Reverse Osmosis tank where the Reverse Osmosis Tank Shut-Off should go. (Refer to Fig. 1, page 2)
3. Wrap Teflon tape three times around the 1/4" male outlet thread. Wrap in the direction of the threads. The tape will act as a thread sealant. Screw on the Reverse Osmosis Holding Tank Shut-Off Valve.
4. Locate the 3/8" Reverse Osmosis Tubing. Firmly press one end into the Reverse Osmosis Holding Tank Shut-Off Valve and the other end into the tee. (Refer to Fig. 1, page 2.) The fittings will grab the Reverse Osmosis tubing and seal it in place. Make sure the Reverse Osmosis tubing is pressed all the way in to create a pressure tight connection.

E. Reverse Osmosis Start Up

At time of start up and each time the Reverse Osmosis filters are changed the Reverse Osmosis system should be sanitized.

1. Sanitizing the Reverse Osmosis system and installing the Reverse Osmosis Sediment Pre-filter. Use a drip pan to aid clean-up.

NOTE: The Reverse Osmosis system should be sanitized BEFORE installing the Reverse Osmosis Activated Carbon Pre-filter and the Reverse Osmosis Membrane.

- Use a good quality unscented liquid chlorine household bleach.
- Open the Reverse Osmosis Dispensing Faucet by lifting the black handle and open the Reverse Osmosis Holding Tank Shut-Off Valve (the handle should be parallel with the valve body).
- Remove the Reverse Osmosis Housing on the side of the manifold labeled "SEDIMENT". Pour one capful of bleach (this is approximately 2 tsp. or 10 ml) into one of the white Housings.. Engage and firmly tighten the Reverse Osmosis Housing hand tight only.
- Remove all Reverse Osmosis Housings add one capful of bleach in each. Engage and firmly tighten the Housings hand tight only.

- Slowly open the Reverse Osmosis Feed Water Ball Valve (turning counter clockwise).
 - As soon as the water begins to come out of the Reverse Osmosis Dispensing Faucet, close the Faucet.
 - Let stand for 15 minutes.
NOTE: During this time, check the Reverse Osmosis system carefully for leaks.
 - At the end of 15 minutes, CLOSE the Reverse Osmosis Feed Water Ball Valve and open the Reverse Osmosis Dispensing Faucet.
 - Allow the Reverse Osmosis Holding Tank to completely drain. Then remove the Reverse Osmosis Activated Carbon Pre-filter Housing, empty, and install the Reverse Osmosis activated Carbon Pre-filter. Firmly tighten the Reverse Osmosis Housing hand tight only.
2. Installing the Reverse Osmosis Membrane:
 - Remove the Reverse Osmosis Membrane Housing, (the closest of the three to In/Out ports), and empty.
 - Insert the Reverse Osmosis Membrane into the Reverse Osmosis Membrane Housing. (The O-rings should be up toward the Reverse Osmosis Membrane Housing cap.) Check the Reverse Osmosis Housing O-ring for proper position in its groove, engage and firmly tighten the Reverse Osmosis Housing hand tight only.
 3. Rinsing the Reverse Osmosis system:
 - Slowly open the Reverse Osmosis Feed Water Ball Valve fully counter clockwise.
 - The Reverse Osmosis Holding Tank Valve should be open. The Reverse Osmosis System is now making water.
 - Do not use the first three full Reverse Osmosis tanks of water.
CAUTION: The Reverse Osmosis Membrane is shipped with a preservative in it (0.5% sodium metabisulfite). This will be rinsed out with the first water produced. Allow the Holding Tank to fill (overnight) and discard the first three full tanks of production. When the Faucet is first opened, expect air and carbon fines (very fine black powder) from the In-Line Activated Carbon Post Filter to be rinsed out. This is normal for the first tank of water or after the In-line filter is changed.
-

REVERSE OSMOSIS OPERATION & MAINTENANCE

A. Reverse Osmosis Normal Operation

1. Reverse Osmosis systems produce drinking water at relatively slow rates. Normal operation is to let the Reverse Osmosis Holding Tank fill with water and then draw water as is needed. When the pressure in the Reverse Osmosis Holding Tank falls to a given pressure (as the water is being used) the Automatic Shut-Off Valve (ASO Valve) will start water production and the Reverse Osmosis system will refill the Reverse Osmosis Holding Tank. When the Reverse Osmosis Holding Tank is full and no water is being used, the ASO Valve will automatically shut off the feed water to conserve water. The more water that is used (up to the capacity of the system) the better the Reverse Osmosis system will function.

After periods of non-use, such as a week of vacation, it is better to empty the Reverse Osmosis Holding Tank and allow the Reverse Osmosis system to produce fresh water for use. If the Reverse Osmosis system is not used for 3-4 weeks or longer, it is a good idea to re-sanitize the Reverse Osmosis system and to change the Reverse Osmosis pre-filter and post filters.

B. Reverse Osmosis Changing Filters

THIS REVERSE OSMOSIS SYSTEM CONTAINS REVERSE OSMOSIS FILTERS WHICH MUST BE REPLACED AT REGULAR INTERVALS TO MAINTAIN PROPER PERFORMANCE. USE ONLY FACTORY APPROVED FILTERS.

The recommended interval for changing the Reverse Osmosis filters (not the Reverse Osmosis Membrane) is every six (6) months. Typical T.F.C. Reverse Osmosis Membrane life expectancy is Five to ten years with Water Softener prior to Reverse Osmosis system. Local conditions may dictate more frequent changes.

1. Close the Reverse Osmosis Feed Water Ball Valve by turning fully clockwise and open the Reverse Osmosis Dispensing Faucet by lifting the handle. Allow the Reverse Osmosis Holding Tank to empty.
2. Loosen and remove the Reverse Osmosis Sediment Pre-filter and the Activated Carbon Pre-filter Housings. Wash the inside of the Reverse Osmosis Housings using a mild detergent and a soft cloth. Do not use abrasive cleaners or pads. Thoroughly rinse all soap from the Reverse Osmosis Housings before reassembly.
3. To sanitize the Reverse Osmosis system and replace the Reverse Osmosis filters:

NOTE: The Reverse Osmosis system should be sanitized before installing the Reverse Osmosis Activated Carbon Pre-filter.

- Use a good quality unscented liquid chlorine household bleach.
- Add one capful Reverse Osmosis Sediment Pre-filter Housing and install the Reverse Osmosis Housing O-ring for proper position in its groove, engage and firmly tighten the Housing hand tight only.
- Add one capful of bleach to the Reverse Osmosis Activated Carbon Pre-filter Housing. Install the Reverse Osmosis Housing without the Reverse Osmosis Activated Carbon Pre-filter.
- The Reverse Osmosis Dispensing Faucet should be open, slowly open the Reverse Osmosis Feed Water Ball Valve.
- As soon as the water begins to drip out of the Dispensing Faucet, close the Faucet.
- Let the Reverse Osmosis system stand for 15 minutes.
- At the end of 15 minutes, in the following order, close the Reverse Osmosis Feed Water Ball Valve, close the Reverse Osmosis Holding Tank Valve and open the Dispensing Faucet to release the pressure.
- Remove the Reverse Osmosis Activated Carbon Pre-filter Housing and empty. Remove the wrapping and install the Reverse Osmosis Activated Carbon Pre-filter. Firmly tighten the Reverse Osmosis Housing hand tight only.
- Disconnect the Reverse Osmosis tubing that runs from the Reverse Osmosis Holding Tank to the Tee (see Fig. 1, page 3). Put 50 drops of bleach (this is ½ tsp. or

3 ml) into the Reverse Osmosis tubing and reconnect it to the Tee.

NOTE: Now is the convenient time to change the In-Line Reverse Osmosis Activated Carbon Post Filter.

- Slowly open the Reverse Osmosis Feed Water Ball Valve. When water begins dripping out of the Reverse Osmosis Dispensing Faucet, in the following order, close the Faucet and then open the Holding Tank Valve.
- Do not open the Reverse Osmosis Faucet for at least 5 hours.
- Discard the first three full tanks of water produced, they will contain chlorine.

C. Changing the In-Line Reverse Osmosis Activated Carbon Post Filter

1. Close the Reverse Osmosis Feed Water Ball Valve by turning fully clockwise.
2. Close the Reverse Osmosis Holding Tank Valve and then open the Reverse Osmosis Dispensing Faucet to release the pressure.
3. Remove the In-Line Reverse Osmosis Activated Carbon Post Filter. Disconnect the used Reverse Osmosis Post Filter by pressing in the connector's collar and at the same time pulling the tube out of the fitting. Unscrew the fittings on the In-Line, re-Teflon tape them and install them on the new Reverse Osmosis Post Filter. Do not over tighten the fittings.
4. Firmly reconnect the polytubes to the new Post Filter. (Refer to Fig. 5 below.)

5. Slowly open the Reverse Osmosis Feed Water Ball Valve.
6. When water begins dripping out of the Reverse Osmosis Faucet, in the following order, close the Reverse Osmosis Faucet and open the Reverse Osmosis Holding Tank Valve. When the Reverse Osmosis Faucet is first opened, expect air and carbon fines (very fine black powder), from the new Reverse Osmosis Post Filter to be rinsed out. This is normal for the first tank of water.

REVERSE OSMOSIS TECHNICAL DATA

A. Reverse Osmosis Water Quality

Reverse Osmosis water quality is normally measured with a TDS meter. The more dissolved solids in the water, the higher the conductivity. The results are usually reported in **Parts per Million (ppm)** or **Milligrams per Liter (mg/l)** of **Total Dissolved Solids (TDS)**. (Although technically they are not exactly equal, in most discussions ppm = mg/l).

Reverse Osmosis Membranes are rated by the amount of dissolved solids that are rejected. This rating is a ratio of the TDS in the feed water to the TDS in the product water and is reported as **Percent Rejection**. If the feed water contained 100 ppm of TDS and the product water contained 10 ppm of TDS, 90 ppm have been rejected and the reject ratio is 90%.

$$\text{Percent Rejection} = \frac{\text{Feed TDS} - \text{Product TDS}}{\text{Feed TDS}}$$

EXAMPLE: Feed water is 500 ppm TDS and the product water is 75 ppm TDS.

$$\text{Percent Rejection} = \frac{500 - 75}{500} \times 100\%$$

$$\text{Percent Rejection} = 0.85 \times 100\% \text{ or } 85\%$$

IN-LINE REVERSE OSMOSIS COCONUT SHELL CARBON POST FILTER ASSEMBLY

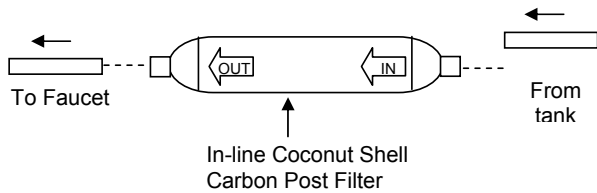


Figure 5

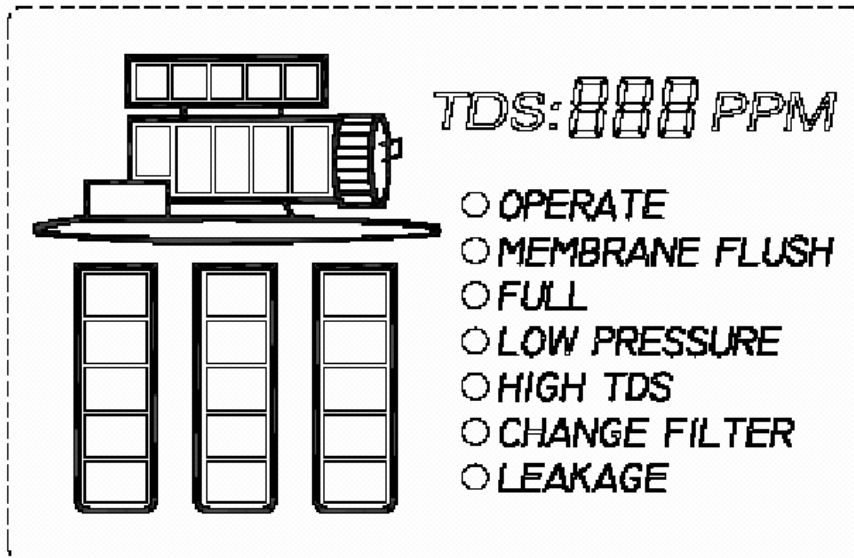
Micro Computer Instruction Manual

1. Functions:

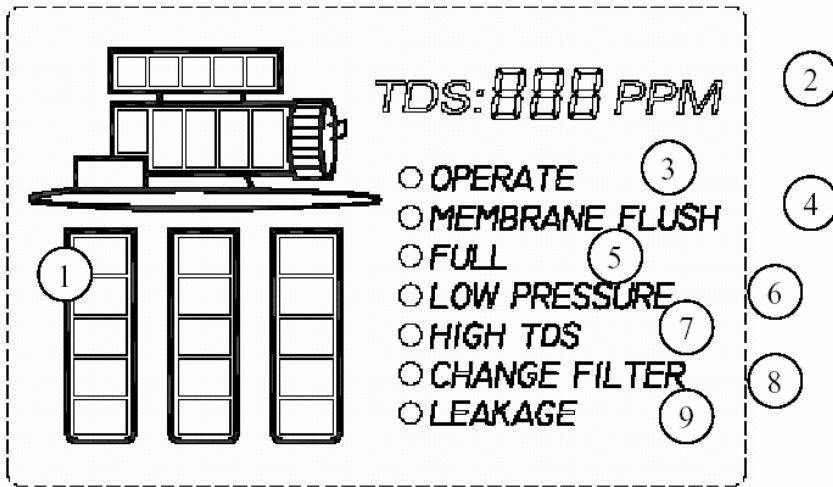
1. Low pressure detection
2. High pressure detection
3. TDS detection
4. Monitoring five filters lifetime
5. Automatic RO membrane flush (once per day)
6. Auto power off for leakage protection
7. Auto power off for currency over 1.8Amp (over load protection)

2. Specifications:

1. 24V input power supply
2. connect with 24V solenoid valve
3. connect with 24V DC booster pump
4. Two reset buttons
5. Two mode switch button
6. LCD display



3. Display introductions



1. Filter lifetime indication 2. TDS value 3. Operating signal
 4. Membrane Flush 5. pressure tank full 6. Low inlet water pressure 7. High TDS warning 8. Change Filter warning
 9. Leakage warning (with beep sound)

Filter life setting :

3 options of each filter:

- 3 months 6 months 12 months

High TDS setting :

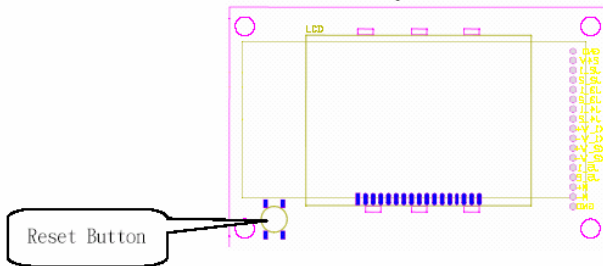
3 options of high TDS

- 100ppm 200ppm 300ppm

4. Instructions :

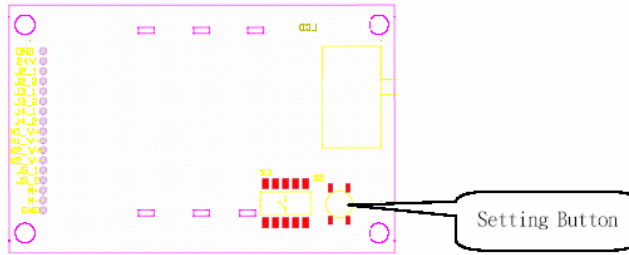
4-1 Reset filters' lifetime :

Whenever filter lifetime reach or over the pre-set value, press the button (shown in bellowed drawing) once to reset. (Note: reset function is to reset the filter whose life time already reached or over the pre-set value.)



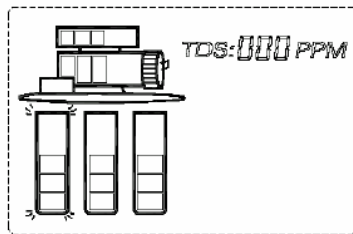
4-2 Reset only one filter:

- a) Press button(in below drawing) 3 seconds into select mode
- b) Select filter by pressing the button
- c) After selected filter, press the button for 3 seconds to finish the resetting procedure

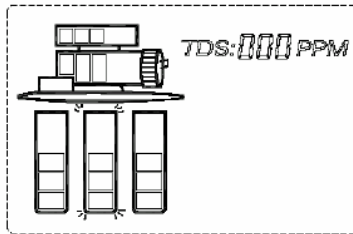


Example:

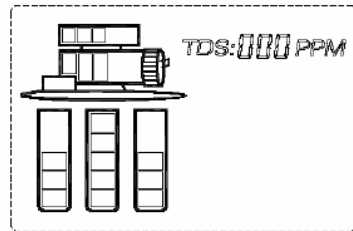
- a) Press the setting button (in below drawing) 3 seconds into select mode, the first stage filter flashes



- b) Press the setting button again , then second stage filter flashes



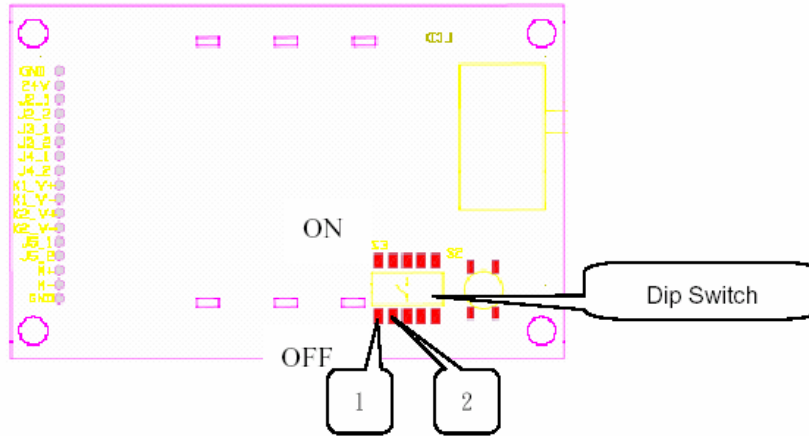
- c) Press the setting button for 3 seconds to finish resetting the second filter



4-3 High TDS alarm value setting:

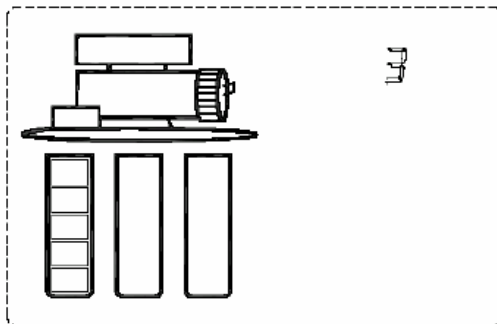
Using dip switch (in below drawing) to select high TDS alarm value following below table.

	100ppm	200ppm	300ppm	Set filter life
1	On	Off	On	Off
2	On	On	Off	Off

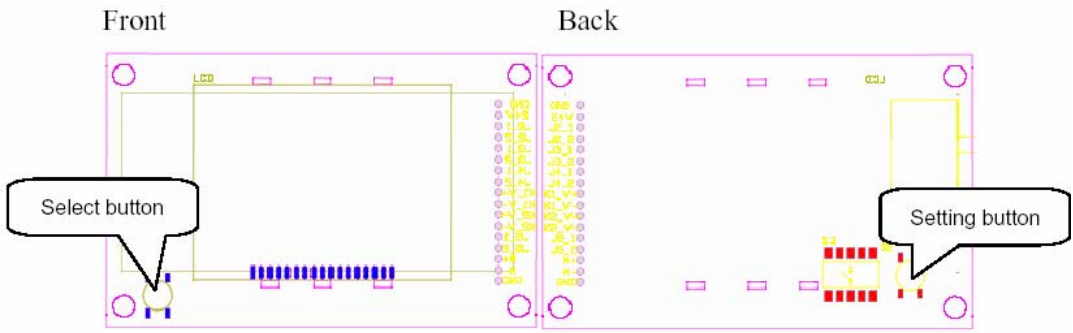


4-4 Filter life time setting:

1 and 2 switch buttons place in OFF to get into filter life time setting mode. :

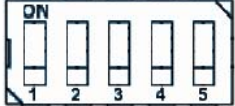


In filter life time setting mode, front button is the “**SELECT BOTTON**” and back button is “**SETTING BUTTON**”. Use select button to select filter, and setting button to choose life time in monthly. After choose the idea life time value, turn the dip switch back to TDS alarm setting value.

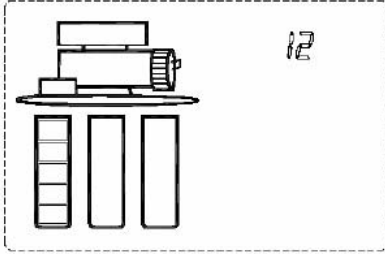


Example

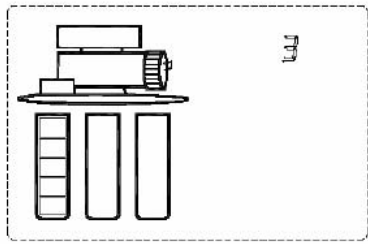
- a) Get into the setting mode: set dip switch all in OFF position



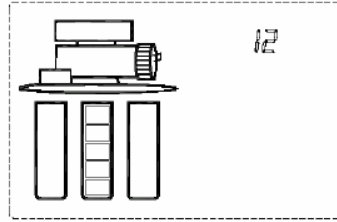
LCD screen shows first filter:



- b) Setting first filter life time:
Press setting button once, 12 months change to 3 months.
First filter setting finished



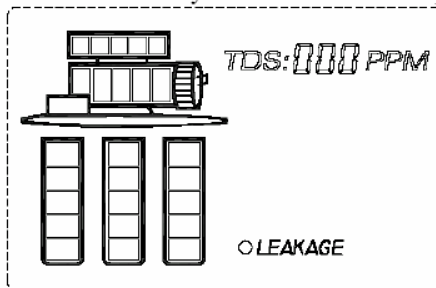
- c) Press the “SELECT BUTTON” again , to the set the second filter’s life time



- d) Repeat procedure (b) and (c)
 e) Finish setting and turn switch button to TDS alarm setting value (Section 4-3).

5 Leakage reset

Leakage detect circuit will turn off system whenever leakage probe shortcut occurred by water. The LEAKAGE message will be shown in the screen . Remove the water and the system will return to operation.



Note: Leakage detected circuit wire must be in open , those two wires cannot be connected with each other . Otherwise, system have fault signal and will not operate.

6 Wiring arrangement

item	I/O	wire color
1	24V transformer (-)	Black
2	24V transformer (+)	Red
3	High pressure switch	Brown
4	High pressure switch	Brown
5	Low pressure switch	Orange
6	Low pressure switch	Orange
7	Leakage detect	Yellow

8	Leakage detect	Yellow
9	RO flush valve	Green
10	RO flush valve	Green
11	Inlet valve	Blue
12	Inlet valve	Blue
13	TDS	TDS probe
14	TDS	TDS probe
15	Pump (+)	Purple
16	Pump (-)	White

REVERSE OSMOSIS TROUBLE SHOOTING GUIDE

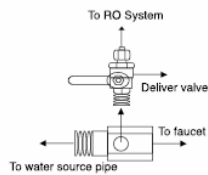
Problem	Possible Cause	Solution
Low quantity of Reverse Osmosis Product Water from Holding Tank	Reverse Osmosis Feed Water Ball Valve is plugged or closed.	Open Valve or unclog.
	Clogged Sediment Pre-filter or Activated Carbon Pre-filter.	Replace Reverse Osmosis filters.
	Low water pressure.	Reverse Osmosis Feed Water pressure must be above 40 psig.
	Reverse Osmosis. Membrane is fouled.	See Reverse Osmosis Feed Water operating limits. Correct cause of fouling, replace Membrane.
	Plugged In-Line Activated Carbon Post Filter.	Replace Post Filter.
	Air pre-charge pressure in Holding Tank is too high.	Empty water from Reverse Osmosis Holding Tank, and with the faucet open, adjust air pressure to 5 – 7 psig (35–48 kPa) range.
	Air pre-charge is too low	
	Air Bladder in the Holding Tank is ruptured.	Replace Reverse Osmosis tank.
	Holding Tank Valve is closed.	Open Valve.
	No drain flow, the Drain Restrictor is plugged.	Clear or replace Drain Restrictor.
	The Check Valve is stuck.	Free check.
	The ASO Valve is malfunctioning.	Replace ASO Valve components.
Low pressure at the Reverse Osmosis Dispensing Faucet	In-Line Activated Carbon Post Filter is plugged.	Replace Post Filter.
	Air pre-charge in the Reverse Osmosis Holding Tank is too low.	Empty water from Reverse Osmosis Holding Tank and with the faucet open, adjust air pressure to 5 – 7 psig (35-48 kPa) range.
		Check for leakage at the Reverse Osmosis Air Valve Stem.
	Reverse Osmosis Holding Tank Valve is partially closed.	Open Valve
	The dispensing Faucet is out of adjustment or faulty.	Repair or replace Reverse Osmosis Dispensing Faucet.
	Heavy water use, Reverse Osmosis Holding Tank is depleted.	Allow Reverse Osmosis Holding Tank to refill (adding a second Holding Tank will increase storage capacity).
	Low Water Production.	See Low Quantity of Product Water from Holding Tank section above.
High Total Dissolved Solids (TDS) in the Product Water	Clogged Sediment Pre-filter or Activated Carbon Pre-filter.	Replace Reverse Osmosis Filters.
	Low Water Pressure.	Reverse Osmosis Feed Water Pressure must be above 40 psig. Check Feed Water Ball Valve.
	Reverse Osmosis Membrane O-ring is crimped.	Check O-ring.
	Reverse Osmosis Membrane brine seal is not sealing up into the manifold head.	Check the brine seal.
	Reverse Osmosis Membrane is expended.	If Reverse Osmosis Membrane life is unusually short, find and correct the problem. Replace Membrane.

Problem	Possible Cause	Solution
High Total Dissolved Solids (TDS) in the Product Water (continued)	The Product Water and Drain Water lines are reversed.	Correct plumbing.
	No drain flow, Reverse Osmosis Drain Restrictor is clogged.	Clear or replace Reverse Osmosis Drain Restrictor.
	The Reverse Osmosis ASO Valve is not closing.	Repair or replace the Reverse Osmosis ASO Valve Components.
	New In-Line or Activated Carbon Pre-filter not rinsed completely.	Flush with several full tanks of Product Water.
	The Reverse Osmosis Feed Water TDS has increased.	An increase in Reverse Osmosis Feed Water TDS will give a corresponding increase in Product Water TDS.
Tastes and odors in the Reverse Osmosis Product Water	The In-Line or Activated Carbon Pre-filter is exhausted.	Replace Reverse Osmosis Filters.
	There is foreign matter in the Reverse Osmosis Holding Tank.	Clean, flush and sanitize the system. Replace the filters.
	The Product Water and Reverse Osmosis Drain Water lines are reversed.	Correct plumbing.
	Dissolved gasses in the Reverse Osmosis Feed Water.	Pre-treat Reverse Osmosis Feed Water to remove dissolved gasses.
	Increase in Product Water TDS.	See high TDS in the Reverse Osmosis Product Water section.
Reverse Osmosis Drain Water overflows at the Air Gap Faucet	Drain tubing is clogged.	Clear tubing.
	Drain clamp hole is misaligned.	Align with hole in the drain pipe.
	Excessive drain flow rate.	Replace Reverse Osmosis Drain Restrictor.
Reverse Osmosis Faucet leaks or drips	Leaks from spout.	Adjust Reverse Osmosis Faucet by turning the tee bar just below the handle to provide a small amount of free play in handle when shut off.
		O-rings are bad, repair or replace faucet.
	Leaks from base of the delivery tube.	O-ring is bad, replace O-ring.
	Leaks from beneath the handle.	O-rings are bad. Repair or replace the faucet.
Reverse Osmosis Fitting leaks in general	Close the Reverse Osmosis Feed Water Ball Valve and relieve pressure before disconnecting any tubing or replacing any fitting. Before replacing a fitting, re-cut the tubing and re-insert into the fitting to see if that solves the leak. If pipe threads are leaking, remove and re-tape with Teflon tape.	

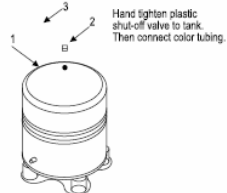
Instructions for Installation and Maintenance of your R/O System

INSTALLATION DIAGRAM

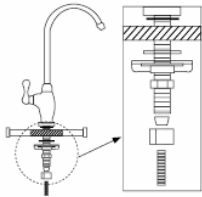
1 Input water:



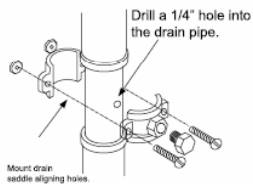
2 Install water tank:



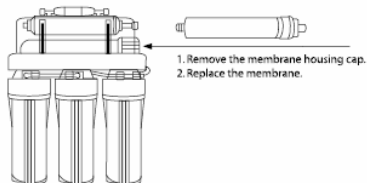
3 Install European ceramic faucet:



4 Install drain saddle:



5 Assemble membrane:

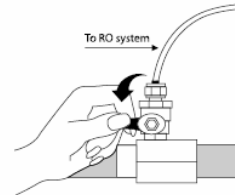


HOW TO CHANGE FILTERS

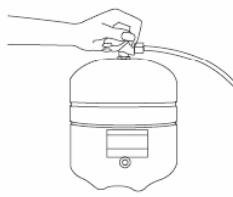
1 Prepare a housing wrench.



2 Turn off water source.



3 Switch off water tank.



4 Open housings clockwise with a wrench.



5 Put the replacement filters in the housings and double o'ring.



6 Drain out 1 Gallon of water to purify replacement filters.

